SENJANINOVA-KORCZAGINA, M.V.

"An Ecological Investigation in the Boreal Ericales.
Paper submitted for the Int'l Botanical Congress, Montreal, Canada, 19-29 Aug 1959.

Leningrad University, U.S.S.R.

SENYANINOVA-KORCHAGINA, M.V.; METEL'KOVA, T.A.

Is peat used as a fertilizer a source of weeds? Vest. LGU 17 no.18:77-94 '62. (MIRA 15:10)
(Weeds) (Peat)

SENYANINOVA-KORCHAGINA, M. V.

"The most important principle in plant morphogenesis."

report submitted for 10th Intl Botanical Cong, Edinburgh, 3-12 Aug 64.

Leningrad State Univ.

SENYANSKIY, V. M. (Aspirant)

"A Furnace for the Low-Temperature Carbonization of Shales With Uniflow Circulation of the Heating Medium." Cand Tech Sci, Moscow Inst of Chemical Machine Building, 30 Dec 54. (VM, 22 Dec 54)

Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (12)

SO: SUM No. 556, 24 Jun 55

Senyanskiy, V. M.

AUTHOR: Karavayev, N.M. and Senyanskiy, V.M. 65-4-4/12

TITLE: Semi-coking of Estonian oil shales in an experimental shaft furnace (Polukoksovaniye Estonskikh slantsev v opytnoy shakhtnoy pechi).

PERIODICAL: "Khimiya i Tekhnologiya Topliva i Masel"(Chemistry and Technology of Fuels and Lubricants)1957,No.4,pp.22-28(USSR)

ABSTRACT: A comparison of tar from oil shales produced in shaft and tunnel furnaces is given in Table 1 and principles of operation of the above two types of furnaces are outlined (Fig.1). An experimental shaft furnace was designed incorporating the best features of both tunnel and shaft furnaces (Fig.2). Semi-coking of shale was based on the principle of internal heating with repeated non-reversible forced circulation of the heat-carrying medium. The results obtained are given in Tables 2-5 and Fig. 3. With an optimum temperature of the heat transfer medium (445 C) the yield of tar and its quality were superior to that produced in tunnel furnaces. On the basis of the results obtained an industrial plant was designed (Fig.4), with a daily throughput of 350 tons. A short description of the plant is given. There are 5 tables, 4 figures and 1 Slavic reference.

Card 1/1

ASSOCIATION: Moscow Institute of Chemical Engineering. (Moskovskiy Institut Khimicheskogo Mashinostroeniya)

AVAILABLE:

SOV/137-57-6-9850

Translation from: Referativnyy zhurnal, Metallurgiya, 1957, Nr 6, p 76 (USSR)

AUTHOR: Senyavin, A.Yu.

TITLE: Improvement in the Technology of Casting Secondary Nonferrous Alloys (Sovershenstvovaniye tekhnologii lit'ya vtorichnykh tsvetnykh splavov)

PERIODICAL: V kn.: Povysheniye proizvoditel'nosti liteynykh tsekhov. Moscow-Sverdlovsk, Mashgiz, 1955, pp 159-169

ABSTRACT: The process of treating secondary nonferrous alloys is improved by better sorting of the scrap and waste, the preparation thereof for melting, reconstruction of foundry departments (which are provided with electrical cranes, charging devices, and teeming machines making for complex mechanization of the entire engineering process), improvement of the technology of casting and refining the alloys, and introduction of advanced methods of analysis.

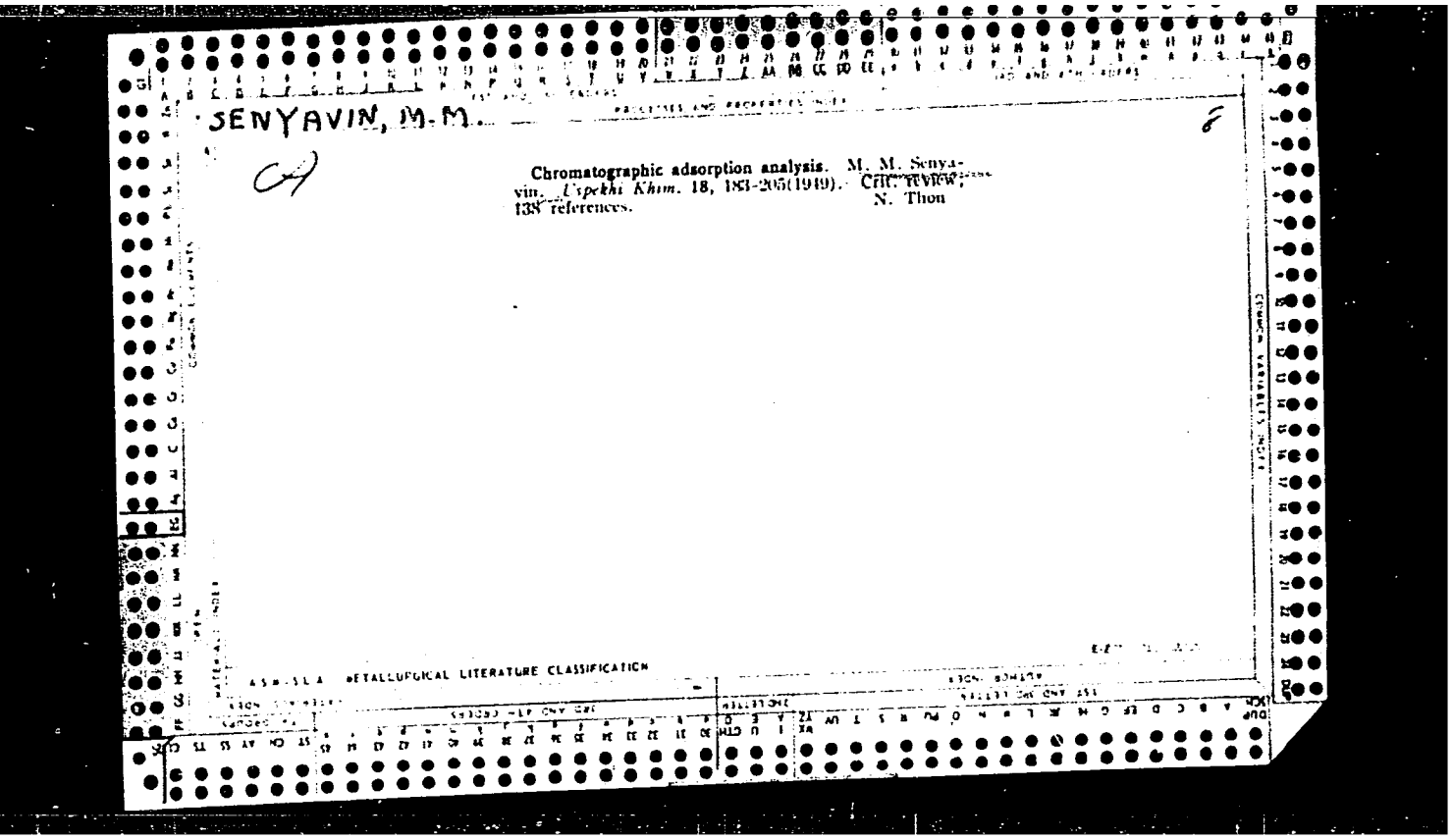
G.S.

Card 1/1

SENYAVIN, A.Yu.

"A rise in the Productivity of Labor in the Production of Secondary Non-Ferrous Metals."

report presented at the Scientific Technical Conference of Workers in Secondary Non-Ferrous Metallurgy, Khar'kov, 25-27 January 1961.


SENYAVIN, M.M.

Chromatographic adsorption analysis. M. M. Senyavin. *Uspekhi Khim.* 18, 183-205(1949). Crit. review; 138 references. N. Thon

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

RYABCHIKOV, D. I., SEMYAVIN, M. M., FILIPPOVA, K. V.

Ion Exchange Substances.

Comparative characteristics of some ion exchange substances. Zhur. anal. khim. 7 No. 3,1952.

Monthly List of Russian Accessions. Library of Congress, August 1952, Unclassified.

RYABCHIKOV, D.I.; SENYAVIN, M.M.

Chromatographic analysis. Zhur.anal.khim. 8 no.4:195-210 Jl-Ag '53. (MLRA 6:8)

1. Institut geokhimii i analiticheskoy khimii imeni V.I.Vernadskogo Akademii nauk SSSR, Moscow. (Chromatographic analysis)

SENYAVIN, M.M.

4
(3) Chem

Analytical Abst.
Vol. 1 No; 2
Feb. 1954
General Analytical Chemistry

225. Comparative characteristics of some ion-exchange materials. II. D. I. Ryabchikov, M. M. Senyavin and K. V. Filippova (*J. Anal. Chem., U.S.S.R.*, 1953, 8 [4], 220–224).—Earlier data (*Brit. Abstr. C*, 1953, 44) are supplemented by results of experiments on swelling capacity and sp.gr. of air-dried and oven-dried ion-exchange substances, and on their exchange capacities at various pH values.

G. S. SMITH

5-21-54 mcl

1. SENYAVIN, M. M.

2. USSR (600)

4. Ions

7. Scientific technical meeting on ion exchange, Elek. sta., 24, no. 3, 1953.

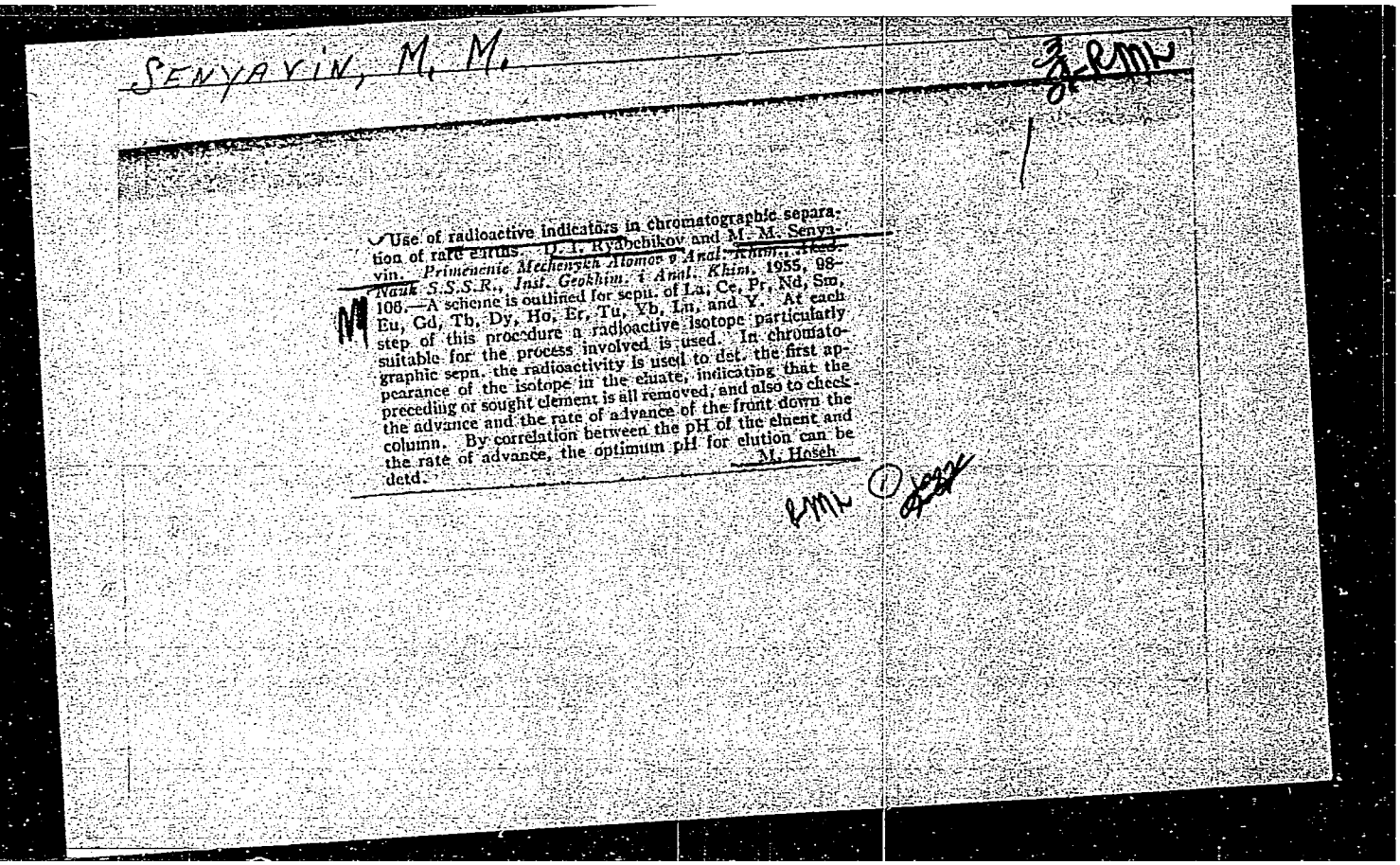
9. Monthly List of Russian Accessions, Library of Congress, April 1953, Uncl.

SENYAVIN, M. and KLINAYEV, V.

"The Application of Labelled Atoms in Analytical Chemistry" p. 118, Academy of Sciences Publishing House (1955).

SENYAVIN, M. M., and RYABCHIKOV, D. I.

"Chromatographic Determination of Uranium in Various Materials," a paper presented at the Atoms for Peace Conference, Geneva, Switzerland, 1955



SENYAVIN, M. M.

Use of radioactive indicators in chromatographic separation of rare earths. D. I. Ryabchikov and M. M. Senyavin. *Primenenie Mechenykh Atomov v Anal. Khim.*, Akad. Nauk S.S.S.R., *Inst. Geokhim. i Anal. Khim.*, 1955, 98–108.—A scheme is outlined for sepn. of La, Ce, Pr, Nd, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tu, Yb, Lu, and Y. At each step of this procedure a radioactive isotope particularly suitable for the process involved is used. In chromatographic sepn. the radioactivity is used to det. the first appearance of the isotope in the eluate, indicating that the preceding or sought element is all removed, and also to check the advance and the rate of advance of the front down the column. By correlation between the pH of the eluent and the rate of advance, the optimum pH for elution can be detd.

—M. Hoseh

SOV/137-57-1-468

Translation from: Referativnyy zhurnal. Metallurgiya, 1957, Nr 1, p 62 (USSR)

AUTHORS: Klinayev, V. M., Senyavin, M. M.

TITLE: Separation of Spectroscopically Pure Cerium From Natural Mixtures by the Extraction Method (Vydeleniye spektral'no chistogo tseriya iz prirodnykh smesey metodom ekstraktsii)

PERIODICAL: V sb.: Primeneniye mechenykh atomov v analiticheskoy khimii, Moscow, Izd-vo AN SSSR, 1955, pp 118-126

ABSTRACT: The authors studied procedures for the extraction of Ce from natural mixtures of rare-earth elements (RE) containing elements of the cerium and yttrium subgroups. The distribution factor of the elements and the completeness of Ce extraction were determined radiometrically by means of radioactive isotopes. It is shown that practically no RE are extracted from hydrochloric-acid solutions with diethyl ether, which fact affords their easy separation from Fe. Tetravalent Ce is extracted selectively and most completely with diethyl ether from concentrated NHO_3 solutions or from less acid solutions saturated with Li, Al, Mg, Ca, and Cd nitrates. The Ce distribution factor depends but little on the concentration of the Ce in the aqueous phase. The

Card 1/2

Separation of Spectroscopically Pure Cerium From Natural Mixtures (cont.)

authors advance the hypothesis that Ce passes into the organic phase in the form of $H_2[Ce(NO_3)_6]$; this agrees with experimental data.

M. S.

RYABCHIKOV, D.I.; SENYAVIN, M.M.

Importance of the chromatographic method of M.S. TSvet in chemical analysis. Trudy Kom.anal.khim. 6:11-20 '55. (MLRA 9:5)

1. Institut geokhimii i analiticheskoy khimii imeni V.I. Vernadskogo AN SSSR.
(Chromatographic analysis) (TSvet, Mikhail Semenovich, 1872-1919)

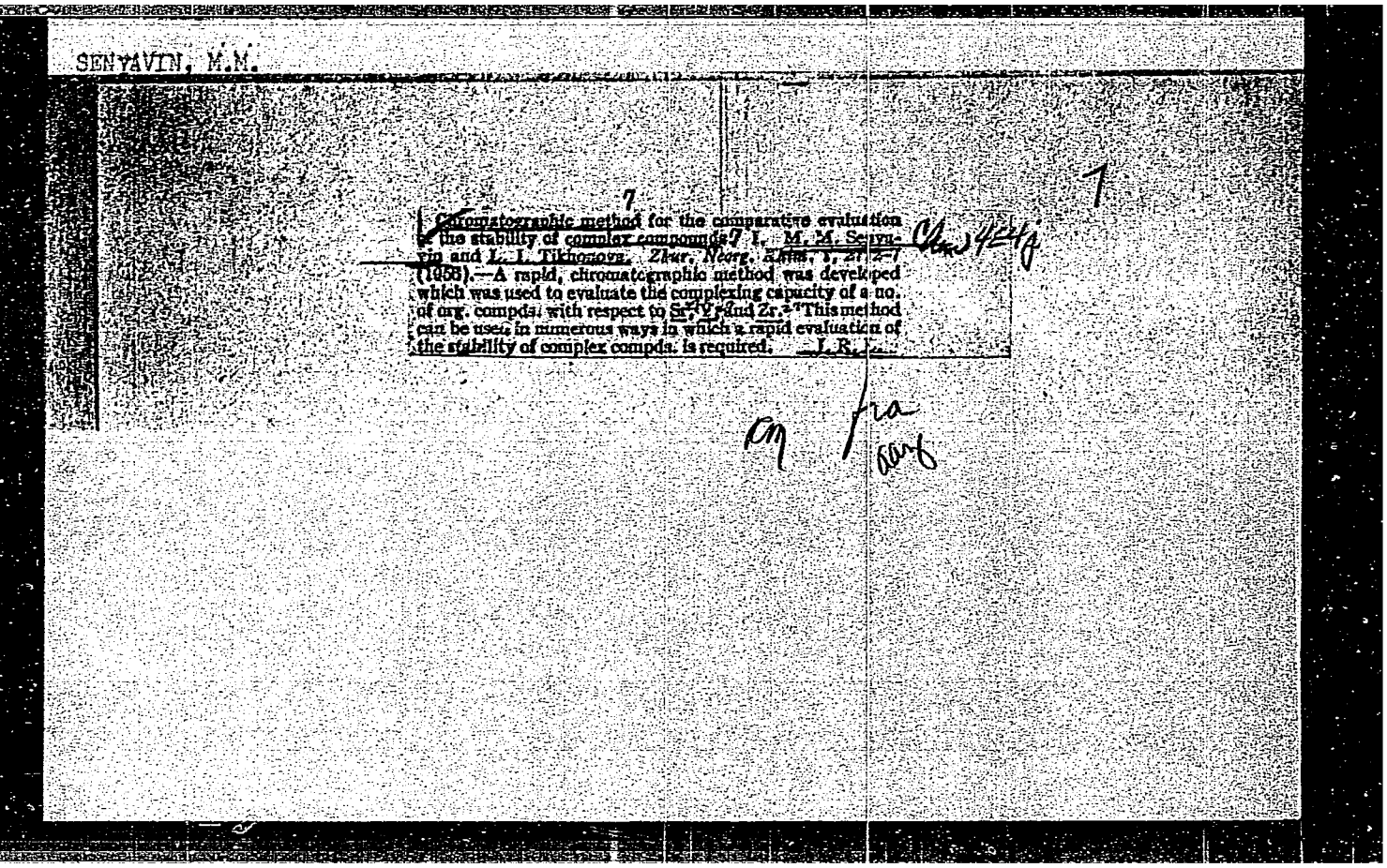
SENYAVIN, M.M., kandidat khimicheskikh nauk.

"Chromatographic analysis." F.M.Shemiakin, E.S.Mitselovskii, D.V.Romanov. Reviewed by M.M.Seniavin. Zav.lab. 21 no.12: 1514-1515 '55. (MIRA 9:4)
(Chromatographic analysis)(Shemiakin, F.M.)(Mitselovskii, E.S.)

YABCHIKOV, D.I.; SEMYAVIN, M.M.

[Chromatographic determination of uranium in various materials] Khromatograficheskoe opredelenie urana v razlichnykh materialakh. Moskva, 1955. 16 p. (MIRA 15:10)

(Uranium--Analysis) (Chromatographic analysis)



SENYAVIN, M.M.

7

Chromatographic method for the comparative evaluation of the stability of complex compounds? I. M. M. Senyavin and L. I. Tikhonova. *Zhur. Neorg. Khim.*, 3, 2?-? (1958).—A rapid, chromatographic method was developed which was used to evaluate the complexing capacity of a no. of org. compds. with respect to Sr^{2+}, Y^{3+}, and Zr^{4+}. This method can be used in numerous ways in which a rapid evaluation of the stability of complex compds. is required. —J. R.

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SENYAVIN, M.M.

USSR/ Analytical Chemistry - General Questions G-1

Abs Jour : Referat Zhur - Khimiya, No 4, 1957, 11967

Author : Senyavin M.M., Sorochan A.M.
Inst : Commission on Analytical Chemistry of the Academy of Sciences USSR
Title : Determination of Free Acid in the Presence of Different Salts

Orig Pub : Tr. Komis. po analit. khimii AN SSSR, 1956, 7(10), 246-271

Abstract : On the basis of critical review of different methods for determining pH, it is shown that this quantity is not characteristic of the content of free acid in salt solutions, due to the dependence of the activity coefficient upon nature and concentration of salts present in the solution. The proposed and experimentally checked procedure of determining the free acid content on the basis of results of concurrent determination of pH and conductance (to evaluate the magnitude of activity coefficient) of the solution being

Card 1/3

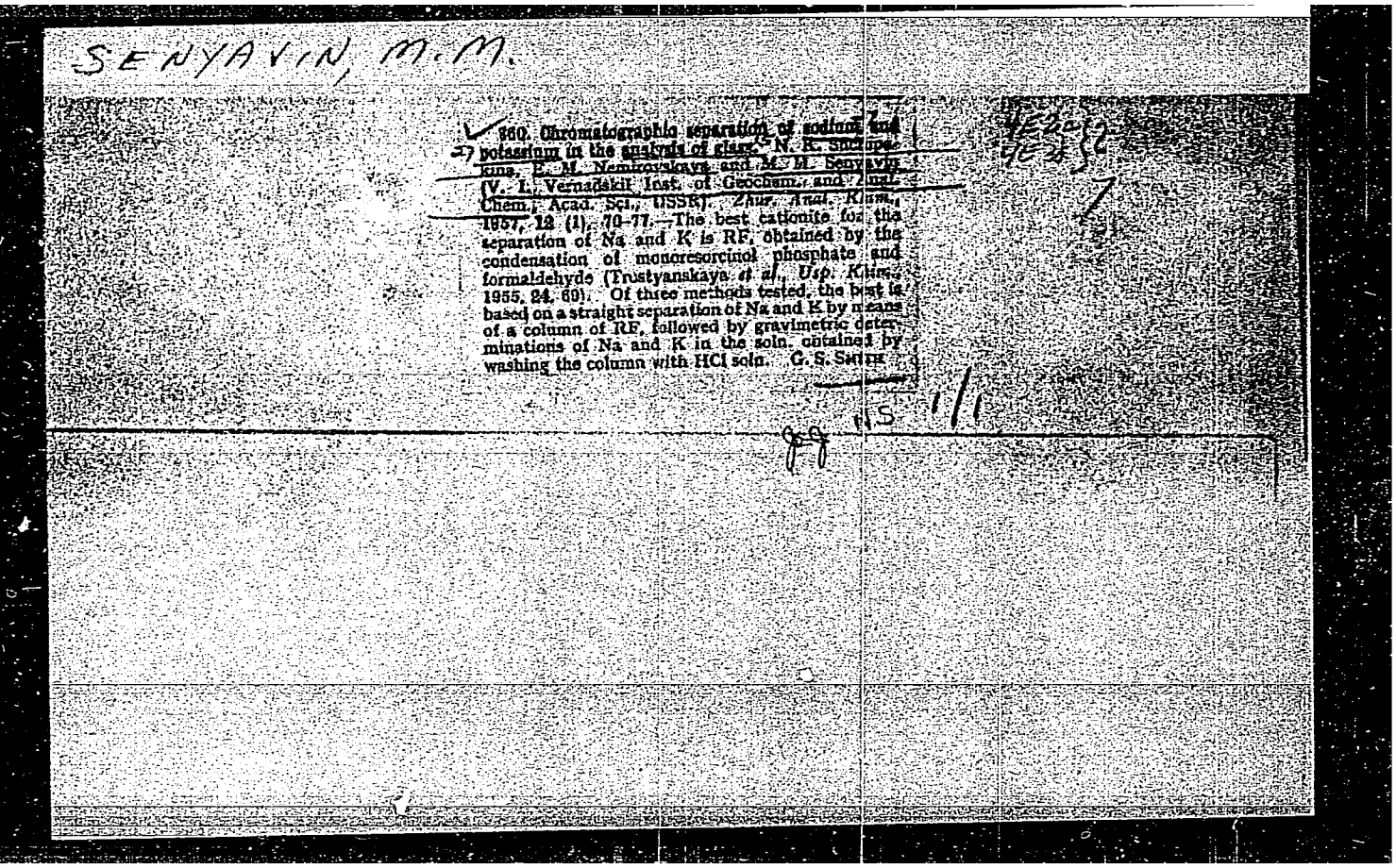
SENYAVIN, M. M.

"The Chromatographic Method for the Comparative Evaluation of the Stability of Complex Compounds; Part 2 -- Complex Compounds of Y (Yb) With Some Organic Substances," by L. I. Tikhonova and M. M. Senyavin, Zhurnal Neorganicheskoy Khimii, Vol 2, No 1, Jan 57, pp 74-79

With the use of a chromatographic method described earlier, a comparative study has been made of the complex compounds formed by yttrium and ytterbium with 59 organic substances. It was established that introduction of a COOH or OH group into a position close to COOH group (alpha-position in the case of the introduction of an OH group) and the presence of a double bond result in increased stability of the complex compound; that lengthening of the carbon-carbon chain, introduction of a phenyl group, replacement of a COOH group with an SO_3H group, or esterification of organic acids lowers the stability of complex compounds; and that NH_2 and OH groups in the beta- or gamma-position exert practically no influence on the stability of complex compounds.

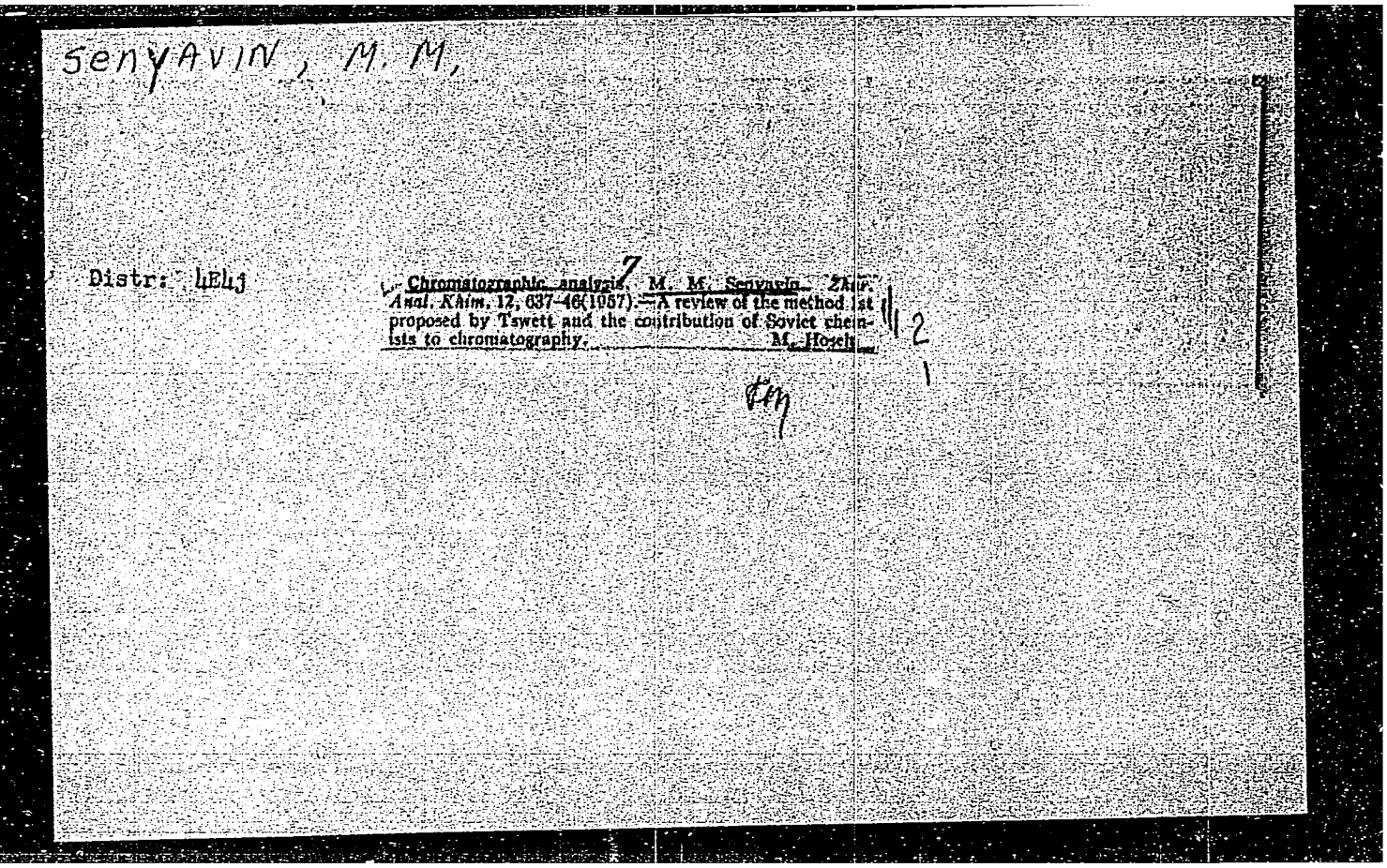
[Comments: Work of this type is significant because the results obtained in it can be applied in the isolation and separation of radioactive isotopes. Furthermore, investigation of the properties of complex-forming compounds (sequestering agents) has a bearing on the application of these compounds in decontamination and in various processes whereby nuclear reactor fuels and materials may be produced and treated.]

Sum. 1305



SENYAVIN, M.M.

360. Chromatographic separation of sodium and potassium in the analysis of glass. N. K. Smirnova, E. M. Nemirovskaya, and M. M. Senyavin (V. I. Vernadskii Inst. of Geochem. and Anal. Chem., Acad. Sci., USSR). *Zhur. Anal. Khim.*, 1957, 12 (1), 70-77.—The best cationite for the separation of Na and K is RF, obtained by the condensation of monoresorcinol phosphate and formaldehyde (Trostyanskaya *et al.*, *Usp. Khim.*, 1955, 24, 69). Of three methods tested, the best is based on a straight separation of Na and K by means of a column of RF, followed by gravimetric determinations of Na and K in the soln. obtained by washing the column with HCl soln. G. S. Smith



Senyavin, M. M.

Distr: 4E4j

Chromatographic analysis. M. M. Senyavin. *Zhur. Anal. Khim.* 12, 637-46(1957).—A review of the method first proposed by Tswett and the contribution of Soviet chemists to chromatography. M. Hosek

7

2

1

SENYAVIN, M. M.

32-9-8/43

AUTHOR: Senyavin, M. M.,

TITLE: Ion Exchange Chromatography in the Chemical Quantitative Analysis (Ionoobmennaya khromatografiya v kolichestvennom khimicheskom analize)

PERIODICAL: Zavodskaya Laboratoriya, 1957, Vol. 23, Nr 9, pp. 1056-1059 (USSR)

ABSTRACT: Here the chromatographical separation of mixtures of elements of some groups of the periodical system is investigated and examples are given for theapplication of the ion exchange chromatography in the analysis of natural or production objects. As there is no simple unmistakable dependence between the width of the zone of the component in the column and the volume in the investigated solution, theelements are transferred into the filtrate successively when applying the chromatography in the quantitative analysis. In the filtrate then according to the ordinary chemical or physical-chemical methods the content of them is determined. It is shown that the separation of the elements of the first groups of the periodical system is carried out principally with cationites and of the last groups with anionites. The "watershed" between the separation with cationites and anionites obviously is the fourth group. Out of the domestic (USSR) sorbents the cationite KU-2 and the cationites SDB-3 and SBS somewhat in-

Card 1/2

SENYAVIN, M. M.

RYABCHIKOV, D. I., SENYAVIN, M. M., and SKLYARENKO, YU. S.

"Separation of Individual Rare Earth Elements,"

paper to be presented at 2nd UN Intl.' Conf. on the peaceful uses of Atomic Enery, Geneva, 1 - 13 Sept 58.

KOLOSOVA, G. M., SENYAVIN, M. M.

"Separation of Rare Earth Elements on Anionites."

Rare Earth Elements (Extraction, Analysis, Use), Published by the Institute of Geochemistry and Analytical Chemistry Imeni V. I. Vernadskiy, 1958, Moscow.

(Institute of Geochemistry and Analytical Chemistry im V. I. Vernadskiy of the USSR Academy of Sciences), p. 138-142.

SENYAVIN, M. M. (Inst of Geochemistry and Analytical Chemistry im V. I. Vernadskiy AS USSR)

"The Use of Radioactive Isotopes in the Chromatographic Separation of Mixtures of Alkaline Metals and Rare-earth Elements"

Isotopes and Radiation in Chemistry, Collection of Papers of 2nd All-Union Sci.Tech. Conf. on Use of Radioactive and Stable Isotopes and Radiation in National Economy and Science, Moscow, Izd-vo AN SSSR, 1958, 350pp.

This volume publishes the reports of the Chemistry Section of the 2nd All Sci Tech Conf on Use of Radioactive and Stable Isotopes and Radiation in Science and the National Economy, sponsored by Acad. Sci. USSR and Main Admin for Utilization of Atomic Energy under Council of Ministers USSR, Moscow, 4-12 April 1957.

5(2) PHASE I BOOK EXPLOITATION SOV/1727

Akademiya nauk SSSR. Institut geokhimii i analiticheskoy khimii

Redkozemel'nyye elementy; polucheniye, analiz, primeneniye (Rare Earth Elements; Extraction, Analysis and Application) Moscow, Izd-vo AN SSSR, 1958. 331 p. 2,200 copies printed.

Resp. Ed.: D. I. Ryabchikov, Professor; Editorial Board: I. P. Alimarin, Corresponding Member, USSR Academy of Sciences, I. N. Zaozerskiy, Doctor of Chemical Sciences, R. V. Koglyarov, Candidate of Technical Sciences, V. I. Kuznetsov, Doctor of Chemical Sciences, M. M. Senyavin, Candidate of Chemical Sciences, and Yu. S. Sklyarenko, Candidate of Chemical Sciences; Eds. of Publishing House: D. N. Trifonov and T. G. Levi; Tech. Ed.: S. G. Markovich.

PURPOSE: This book is intended for scientists, chemists, teachers and students of higher educational institutions, chemical and industrial engineers, and other persons concerned with the extraction, preparation, use, or study of rare earth elements.

COVERAGE: This collection contains reports presented at the June 1956 Conference on Rare Earth Elements at the Institute of Geochemistry and Analytical Chemistry imeni V. I. Vernadskiy of the Academy of Sciences USSR. The articles treat chemical methods of separating rare earth mixtures, methods of processing rare earth ores, ion exchange chromatography, chemical analysis, and some industrial applications of rare earths. Aside from contributing authors, the editors mention the following Soviet scientists, who are studying rare earth elements, rare earth deposits, extraction methods, and the preparation of oxides and salts: Martynov, Mel'nikov, Khrushchev, Malikov, Pisarzhevskiy, Chernyak, Tananayev, Belousov, Zhukov and especially, N. A. Orlov, who first obtained the majority of rare earth elements in the pure state, separated many complex molecular compounds of these elements, and determined their specific properties. References are given at the end of each article.

TABLE OF CONTENTS:

Rare Earth Elements; Extraction (Cont.) SOV/1727

Card 4/11

SENYAVIN, M. M.

"Use of radioactive isotopes in chromatography."

report presented at The Use of Radioactive Isotopes in Analytical Chemistry, Conference in Moscow, 2-4 Dec 1957
Vestnik Ak Nauk SSSR, 1958, No. 2, (author Rodin, S. S.)

SENYAVIN, M. M.

AUTHORS: Senyavin, M. M., Kolosova, G. M., Nikashina, V. A. 78-1-19/43

TITLE: On Some Characteristic Features of the Chromato-graphic Separation of Mixtures of Radioactive Substances (O nekotorykh osobennostyakh khromatograficheskogo razdeleniya smesey radioaktivnykh veshchestv).

PERIODICAL: Zhurnal Neorganicheskoy Khimii, 1958, Vol. 3, Nr 1, pp.104-108 (USSR).

ABSTRACT: An investigation of general problems of the characteristic features of the conditions of the separation referred to in the title is given in the present report. The dependence of the degree of chromatographic separation on the amount of substance is caused by the static and kinetic cgaracteristic features of the process. As a rule statics reproduces the situation of the maximum of the zone of the substance on the yield curve, so to say also its value, whereas kinetics determines the washing out of the zone. In the case of a simple chromatographic method of displacement the specific circumstances of the separation of small quantities are not connected with any essential changes of test conditions. The chromatographic separation of microquantities by means of complex-forming reagents admits at first sight that the position of the culminating point of the yield curve

Card 1/3

depends on the quantity of the substance to be separated, in which case the concentration of the complex-forming reagent remains constant. This was, however, not proved experimentally (reference 2). By washing out with 0,003 mol-solution of the ethylenediamine-tetra-acetic acid of the radioactive strontium from a column of cationite KU-2, the position of the culminating point did not change with the change of the strontium-content by the 10^{10}fold. This explains the stupefying fact that with a gigantic span of the substances to be separated, the chemical conditions of separation (the concentration of the complex-forming reagent and the acidity of the solution) remain unchanged. Unfortunately no data are available in literature on the constancy of the radiation of organic synthetic ion exchanging adsorbents and on the change of the properties of adsorption of the cationites and anionites by irradiation. The authors therefore give the results so far available on irradiation with x-rays of the industrial cationite KU-2. As results from table 2 its exchange-capacity increases to some extent under this influence, whereas the capability of swelling decreases substantially. The former is apparently due to the oxidation of hydrocarbon and to the forma-

tion of the OH- or COOH-groups in the benzene-ring with exchangable hydrogen atoms. The reduced capability of swelling can only be understood from the point of the increased number of cross bonds between the polystyrene chains due to the formation of 6-C-bonds between the benzene nuclei. The aforesaid changes of radiation of cationite can influence its properties of adsorption in the following way: the increased capacity of exchange can play no important rôle. On the other hand it was proved (reference 5) that the reduced capability of swelling increases the selectivity of the cationites substantially. It results from figure 1 that the mixture of strontium-barium is much clearer separated on cationite KU-2 with decreased capability of swelling. There are 1 figure, 1 table, and 5 Slavic references.

SUBMITTED: June 18, 1957.

AVAILABLE: Library of Congress.

Citric Acid Complexes of Ytterbium. 78-2-8/43

These complexes have the following stability constants: $[YbOHCit] = 10^{-16}$, $[Yb(OH)_3Cit] = 10^{-36}$ and $[YbCit]$ = about 10^{-8}. From the course of the stability constant of the citric-acid complexes of ytterbium follows that different complexes of different composition simultaneously exist in a solution. There are 3 figures, 3 tables, and 19 references, 3 of which are Slavic.

SUBMITTED: April 11, 1957

AVAILABLE: Library of Congress

Card 2/2

SOV/156-58-4-39/49

AUTHORS: Polevodov, A. P., Nikashina, V. A., Gordiyevskiy, A. V., Senyavin, M. M., Breger, A. Kh.

TITLE: The Radio-Chemical Stability of the Ion Exchange Resins Under the Influence of γ- and β-Rays on the Cationites (Radiatsionno-khimicheskaya ustoychivost' ionoobmennykh smol. Deystviye γ- i β-izlucheniy na kationity)

PERIODICAL: Nauchnyye doklady vysshey shkoly. Khimiya i khimicheskaya tekhnologiya, 1958, Nr 4, pp 761-764 (USSR)

ABSTRACT: The radio-chemical stability of the cationites KU-2, KU-1, SBS, RF, KB-4 under the influence of γ- and β-rays was investigated. Cobalt^{60} was used as γ-radiator. In the irradiation the capacity of the cationites is reduced. The chemical stability is reduced by the irradiation and the capability of swelling of the resins KU-2 and KB-4 decreases, whereas it increases with the resins KU-1 and RF. The quantity of the functional group of the cationites becomes smaller with increasing activity. The ion exchangers of aromatic structure are more stable than resins of aliphatic structure. γ- and β-irradiation has the same influence

Card 1/2

The Radio-Chemical Stability of the Ion Exchange Resins Under the Influence of γ- and β-Rays on the Cationites

on the cationites. The irradiation of cationites in air under the influence of γ-rays causes deeper destructive changes in the cationites. There are 1 figure, 2 tables, and 3 Soviet references.

ASSOCIATION: Kafedra tekhnologii radioaktivnykh, redkikh i rasseyannykh elementov Moskovskogo khimiko-tekhnologicheskogo instituta im. D. I. Mendeleyeva (Chair of Technology of the Radioactive, Rare and [illegible] Elements at the Moscow Chemical and Technological Institute imeni D. I. Mendeleyev)

SUBMITTED: March 24, 1958

AUTHORS: Kabachnik, M. I., Medved', T. Ya., SOV/62-58-9-8/26
Kozlova, G. K., Balabukha, V. S., Senyavin, M. M.,
Tikhonova, L. I.

TITLE: Synthesis and Testing of the Complex-Forming Properties of Several Organophosphorus Compounds (Sintez i ispytaniya kompleksoobrazuyushchey sposobnosti nekotorykh fosfororganicheskikh soyedineniy)

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1958, Nr 9, pp 1o7o - 1o75 (USSR)

ABSTRACT: After the discovery that the diaminocarboxylic acid series is highly active in forming complex compounds the authors of this paper became interested in studying the complexing properties of some α-aminoalkyl phosphinic acids and their derivatives. Only a few papers appear in the publications on this topic (Refs 3-6). The authors investigated the complexing properties of some aminoalkyl phosphinic acids which they had previously prepared as well as several ethylenediaminodiphosphinic acids. The investigations showed that in the reaction between

Card 1/2

Synthesis and Testing of the Complex-Forming Properties of Several Organophosphorus Compounds SOV/62-58-9-8/26

ethylenediamine and dialkyl phosphites and aldehydes (or ketones), esters of ethylenediaminodialkylphosphinic acids form. By saponifying these esters the free acids can be obtained. The complexing properties of the ethylenediaminodialkylphosphinic acids so prepared were tested chromatographically. Other aminoalkyl phosphinic acids previously prepared were also studied to determine their complexing properties. It was shown that the ethylenediaminodialkylphosphinic acids form stable complex compounds with ytterbium and yttrium. There are 2 tables and 7 references, 2 of which are Soviet.

ASSOCIATION: Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR (Institute of Element-organic compounds, AS USSR)

SUBMITTED: February 14, 1957

Card 2/2

SENYAVIN, M. M. (Moscow,)

"The Use of Complexons in the Ion Exchange Chromatography,"

report delivered at the Symposium on the Theory and the use of Complexons in Analytical Chemistry, called by the commission for Analytical Chemistry, at the Inst. for Geochemistry and Aanlytical Chem. im V. I. Vernadskiy, AS USSR, Moscow, 28-30 Nov 1957.
(Zhur. Anal Khim,'58, 13, no. 2, p. 261-62, see Pozdnyakov, A. A.)

SENYAVIN, M.M.

5(3) P.2 PHASE I BOOK EXPLOITATION SOV/2995

Akademiya nauk SSSR. Otdeleniye khimicheskikh nauk. Komissiya po khromatografii

Ionnyy obmen i yego primeneniye (Ion Exchange and Its Application) Moscow, Izd-vo AN SSSR, 1959. 318 p. Errata slip inserted. 4,000 copies printed.

Ed.: K. V. Chmutov, Corresponding Member, USSR Academy of Sciences; Eds. of Publishing House: T. G. Levi and N. G. Yegorov; Tech. Ed.: G. N. Shevchenko.

PURPOSE: This book is intended for factory and scientific research laboratory personnel, engineers, teachers and advanced students at vuzes concerned with the study of ion-exchange processes.

COVERAGE: This collection of seven articles treats the principal trends in the investigation and application of ion-exchange processes in heterogeneous media, and reviews the present state of ionite synthesis and application. No personalities are mentioned. References are given at the end of each article.

Card 1/3

AVAILABLE: Library of Congress

Card 3/3

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SENYAVIN, M.M.

5(2) PHASE I BOOK EXPLOITATION SOV/2402

Akademiya nauk SSSR. Institut geokhimii i analiticheskoy khimii

Redkozemel'nyye elementy; polucheniye, analiz, primeneniye (Rare Earth Elements; Production, Analysis, and Use) Moscow, Izd-vo AN SSSR, 1959. 331 p. 5,000 copies printed.

Resp. Ed.: D. I. Ryabchikov, Professor; Eds. of Publishing House: D. N. Trifanov and T.G. Levi; Tech. Ed.: S. G. Markovich; Editorial Board: I. P. Alimarin, Corresponding Member, USSR Academy of Sciences, I. N. Zaozerskiy, Doctor of Chemical Sciences, R. V. Kotlyarov, Candidate of Chemical Sciences, V. I. Kuznetsov, Doctor of Chemical Sciences, M. M. Senyavin, Candidate of Chemical Sciences, and Yu. S. Sklyarenko, Candidate of Chemical Sciences.

PURPOSE: This book is intended for chemists in general and for geochemists and analytical chemists in particular.

COVERAGE: This collection of articles consists of reports presented at the Rare Earth Elements Symposium held in June 1956 at the Institute of Geochemistry

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E-1

17462

COUNTRY : China
CATEGORY :
ABS. JOUR. : RZKhim., No. 5 1960, No.
AUTHOR : Senyavin, M. M.
INST. : Not given
TITLE : The Application of Chromatography in Analytical Chemistry and in Industry

ORIG. PUB. : Huaxue Tongbao, No 5, 12-15, 34 (1959)

ABSTRACT : Reprint of a paper presented at the Research Institute for Chemistry of the Academy of Sciences of the Chinese Peoples Republic.

F. Sudakov

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CARD: 1/1

resins were determined. These characteristics are: static exchanging capacity indicating the total number of functional groups capable of exchange; the exchanging capacity with the given pH-value of the medium; swelling capacity of the resin depending on the degree of interlacing of the resin with given humidity, and determining in its turn the penetrability of various ions into the pores of the resin; the oxidizability of the filtrate depending on the solubility of the exchanger in the respective medium. Radiation of air-dried exchanger samples with x-rays was carried out by means of especially strong tubes in the laboratory of IFKh AN SSSR (Institute of Physical Chemistry of the AS USSR). The use of especially strong tubes made it possible to provide considerable integral doses of radiation in a comparatively short time. Results of investigations are given in table 1 and figure 1. As x-rays cannot penetrate deeply into the exchanger, γ-rays were used for testing following these investigations. These experiments were carried out in an apparatus for radiation-chemical investigations of type "K-20000"[28] of the Fiziko-khimicheskiy institut imeni L.Ya.Karpova (Institute of Physical Chemistry imeni

Radiative-chemical Stability of Some Ion-exchange Resins Against the Action of X-ray and Gamma Radiation

S/064/59/000/07/004/035
B005/B123

L.Ya.Karpov). Some results of these investigations are given in table 2 and in figures 2-5. It appeared that in all investigated exchanger-resins, under the radiation influence, decomposition processes and interlacing processes are competing. The radiative- chemical changes are more radical in aliphatic resins than in aromatic resins. The quality of the functional groups of the investigated exchangers remains the same, whereas their number decreases somewhat with increasing radiation dose. Among the resins investigated the cationite of the type KU-2 proved to be the most stable. There are 5 figures, 2 tables, and 7 references, 4 of which are Soviet.

Card 3/3

5 (2)

AUTHORS: Senyavin, M. M., Zhirov, Ye. P. SOV/32-25-8-7/44

TITLE: On the Choice of Conditions of the Chromatographic Separation of Mixtures

PERIODICAL: Zavodskaya laboratoriya, 1959, Vol 25, Nr 8, pp 914 - 916 (USSR)

ABSTRACT: When conducting ion exchange chromatography the following are of primary importance: determination of the optimum relation between the diameter of the filter (D) and the height of the sorbent layer (1), and the most favorable flow velocity of the solution (VS). To settle the first problem chromatographic washing-out experiments were conducted for ytterbium from columns with 5 different (D). The measurements were made with Yb^{175} (Table). An increase of the (D) or a decrease of the ratio 1 : D worsened the degree of chromatographic separation (CS). It was established that this observation cannot be explained by the so-called "wall effect". The influence of the (VS) was investigated on the cation exchanger with Na-, Co-, and Yb-ions (using Na^{24}, Co^{60}, and Yb^{175}). (VS) of 0.35, 0.70, and 1.05 ml/minute were used. It was established that the (CS)

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decreases with an increase of the (VS) in space (ratio of the quantity of liquid to the quantity of sorbent per time unit) and at given (VS) in space with the decrease of the linear (VS). Therefore, possibly long and narrow columns should be used (caused by the resistance of the sorbent layer). There are 3 figures and 1 table.

ASSOCIATION: Institut geokhimii i analiticheskoy khimii Akademii nauk SSSR (Institute of Geochemistry and Analytical Chemistry of the Academy of Sciences, USSR)

SENYAVIN, M M.

17

PHASE I BOOK EXPLOITATION SOV/5747

Vsesoyuznoye soveshchaniye po redkim shchelochnym elementam. 1st, Novosibirsk, 1958.

Redkiye shchelochnyye elementy; sbornik dokladov soveshchaniya po khimii, tekhnologii i analiticheskoy khimii redkikh shchelochnykh elementov, 27-31 yanvarya 1958 g. (Rare Alkali Elements; Collection of Reports of the Conference on the Chemistry, Technology, and Analytical Chemistry of Rare Alkali Elements, Held 27-31 January, 1958) Novosibirsk, Izd-vo Sibirskogo otd. AN SSSR, 1960. 99 p. 1000 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Sibirskoye otdeleniye. Khimiko-metallurgicheskiy institut.

Resp. Ed.: T. V. Zabolotskiy, Candidate of Technical Sciences; Members of Editorial Board: A. S. Mikulinskiy, Professor, Doctor of Technical Sciences, A. T. Logvinenko, Candidate of Technical Sciences, F. F. Barkova, Candidate of Chemical Sciences; Ed.: V. M. Bushuyeva; Tech. Ed.: A. F. Mazurova.

Card 1/5

Rare Alkali Elements; Collection (Cont.) SOV/5747

PURPOSE : This book is intended for chemical engineers and technicians working in metallurgical and mining operations and related enterprises.

COVERAGE: The collection contains reports which deal with the physical and analytical chemistry of rare alkali elements and their compounds and their reactions with mineral ores and salts. Methods of extraction and modern analytical techniques and equipment are also discussed. No personalities are mentioned. References accompany individual articles.

TABLE OF CONTENTS:

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AVAILABLE: Library of Congress (QD 172.A4V8)

JA/rsm/jw
11-27-61

Card 5/5

S/081/61/000/024/045/086
B117/B147

AUTHORS: Galkina, N. K., Senyavin, M. M.

TITLE: Chromatographic separation of alkali-metal mixtures

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 24, 1961, 334, abstract 24K55 (Sb. "Redk. shchelochn. elementy", Novosibirsk, Sib. otd. AN SSSR, 1960, 87 - 96)

TEXT: The industrial separation of cesium from pollucite with the aid of ion exchange was studied. Optimum conditions for cesium separation were established: To separate cesium from sodium, the column is washed with a 0.3 N acid at a rate of 1 ml/min·cm^2, and to separate cesium from calcium, it is washed with a 0.4 N acid at a rate of 3 ml/min·cm^2. Only resins are used for a successful separation in order that the weight of the separable mixture be ≤3% of the resin weight. The most suitable procedure is to perform the chromatographic separation of the alkali-metal salt mixture on the phosphoric acid РФ (RF) cationite. Yield curves for the separation of potassium and rubidium, rubidium and cesium on the RF cationite, as well as of lithium and sodium, sodium and cesium, cesium

S/081/61/000/024/045/086
B117/B147

Chromatographic separation of...

and calcium on the kY-2 (KU-2) cationite are given. [Abstracter's note: Complete translation.]

Card 2/2

KOLOSOVA, G.M.; CHEN YUAN'-PAN' [Ch'eng Yuan-p'an]; SENYAVIN, M.M.

Chromatographic separation of hafnium from zirconium and determination of hafnium by the isotope dilution method. Zhur.anal.khim. 15 no.3:364-366 My-Je '60. (MIRA 13:7)

1. V.I.Vernadskiy Institute of Geochemistry and Analytical Chemistry, Academy of Sciences, U.S.S.R., Moscow.
(Hafnium) (Zirconium)

SENYAVIN, M.M.; KOLOSOVA, G.M.; PASHKOV, A.B.

Selectivity of ion exchange resins. Trudy kom. anal. khim. 11:406-410 '60. (MIRA 13:10)

1. Institut geokhimii i analiticheskoy khimii im. V.I.Vernadskogo AN SSSR.
(Ion exchange) (Resins, Synthetic)

SLOVOKHOTOVA, N.A.; NIKASHINA, V.A.; SENYAVIN, M.M.

Study of some physicochemical properties of the KU-2 cation exchanger by means of infrared spectroscopy. Zhur.fiz.khim. 35 no.10:2387-2388 O '61. (MIRA 14:11)

1. Akademiya nauk SSSR, Institut geokhimii i analiticheskoy khimii.
(Ion exchange resins--Spectra)

GALKINA, N.K.; RUBINSHTEYN, R.N.; SENYAVIN, M.M.

Statics of ion exchange in mixtures. Dokl.AN SSSR 137 no.5:1144-1146 Ap '61. (MIRA 14:4)

1. Institut geokhimii i analiticheskoy khimii im. V.I.Vernadskogo AN SSSR. Predstavleno akademikom A.P.Vinogradovym.
(Ion exchange)

SENYAVIN, M.M.; TIKHONOVA, L.I.

Comparative evaluation of the stability of complex compounds by means of ion-exchange chromatography. Zhur.neorg.khim. 7 no.5: 1095-1100 My '62. (MIRA 15:7)
(Complex compounds) (Chromatographic analysis)

VARSHAL, G.M.; SENYAVIN, M.M.

Preparation of nonaqueous solutions of thiocyanic acid by the ion exchange method. Zhur.anal.khim. 17 no.7:903-904 O '62. (MIRA 15:12)

1. Institute of Geology of Ore Deposits, Petrology, Mineralogy and Geochemistry, Academy of Sciences, U.S.S.R., Moscow.
(Thiocyanic acid) (Ion exchange)

UDAL'TSOVA, N.I.; SAVVIN, S.B.; NEMODRUK, A.A.; NOVIKOV, Yu.P.; DOBROLYUBSKAYA, T.S.; SINYAKOVA, S.I.; BILIMOVICH, G.N.; SERDYUKOVA, A.S.; BELYAYEV, Yu.I.; YAKOVLEV, Yu.V.; NEMODRUK, A.A.; CHMUTOVA, M.K.; GUSEV, N.I.; PAILEY, P.N.; VINOGRADOV, A.P., akademik, glav. red.; ALIMARIN, I.P., red.; BABKO, A.K., red.; BUSEV, A.I., red.; VAYNSHTEYN, E.Ye., red.; YERMAKOV, A.N., red.; KUZNETSOV, V.I., red.; RYABCHIKOV, D.I., red. toma; TANANAYEV, I.V., red.; CHERNIKHOV, Yu.A., red.; SENYAVIN, M.M., red. toma; VOLYNETS, M.P., red.; NOVICHKOVA, N.D., tekhn. red.; GUS'KOVA, O.M., tekhn. red.

[Analytical chemistry of uranium] Analiticheskaia khimiia urana. Moskva, Izd-vo Akad.nauk SSSR, 1962. 430 p. (MIRA 15:7)

1. Akademiya nauk SSSR. Institut geokhimii i analiticheskoy khimii.

(Uranium--Analysis)

S/844/62/000/000/101/129
D204/D307

AUTHORS: Nikashina, V. A., Slovokhotova, N. A. and Senyavin, M. M.

TITLE: Radiochemical stability of some ion-exchange resins

SOURCE: Trudy II Vsesoyuznogo soveshchaniya po radiatsionnoy khimii. Ed. by L. S. Polak. Moscow, Izd-vo AN SSSR, 1962, 596-602

TEXT: The stability of cationites КУ-1, КУ-2, КБ-4, СБС, РФ (KU-1, KU-2, KB-4, SBS, RF) and of anionites ЭДЭ-10, АВ-16 (EDE-10, AV-16) was studied, since previously published data, obtained under differing conditions, are incomplete and sometimes contradictory. The methods were those used earlier (ZhNKh, 3, 104 (1958); Nauchnyye doklady vysshey shkoly, khimiya i khim. tekhnologiya, 4, 76 (1958); Khim. promyshl., 7, 19 (1959)). The present and some previously published results are collected in a table, showing that in general the exchange capacity decreased on irradiation. Ionites containing SO_3H groups were the most and those containing COOH the least stable. The change in exchange capacity in sulfonated cation-

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ites is ascribed to a change in the chemical nature and to the splitting off of SO_3H groups. The main products of the latter process are an unidentified sulfonic acid and H_2SO_4. Sulfuric acid was actually demonstrated by paper chromatographic and ir spectroscopic methods. Changes in the relative swelling capacity on irradiation (evidence for the formation or destruction of bonds) showed that cross-linking was induced mainly in resins containing aromatic groups, whilst aliphatic ionites (the anionites, KB-4 and SBS) underwent breakdown. Thus in KU-2 the swelling capacity was reduced as a result of increased cross-linking; this was demonstrated by ir spectroscopy and tests with KU-2 containing various amounts of divinylbenzene (i.e. cross-linked to various degrees). The mechanism of cross-linking is as yet unknown. It is concluded that sulfonated cationites are relatively the most stable. Cationite KU-2 is recommended for technological utilization. There are 5 figures and 2 tables. The most important English-language reference is: V. A. Nikashina, A. Kh. Breger, M. M. Senyavin and A. V. Gordiyevskiy, Inter. J. Appl. Rad. and Isotopes, 4, 201, (1959).

Card 2/3

GALKINA, N.E., PUSHKINTSEV, B.N., SENYAVIN, M.M.

Statics of exchange of a mixture of ions. Zhur. fiz. khim. 36 no.9:1860-1969 S '62. (MIRA 17:6)

1. Institut geokhimii i analiticheskoy khimii imeni Vernadskogo, Moskva.

RYABCHIKOV, D.I., prof., otv. red.; VAGINA, N.S., kand. tekhn. nauk, red.; KORCHEMNAYA, Ye.K., kand. khim. nauk, red.; RUSANOV, A.K., doktor tekhn. nauk, red.; RYABUKHIN, V.A., kand. khim. nauk, red.; SENYAVIN, M.M., kand. khim. nauk, red.; SKLYARENKO, Yu.S., kand. khm. nauk, red.; STROGANOVA, N.S., nauchn. sotr., red.; MAKUNI, Ye.V., tekhn. red.

[Rare-earth elements] Redkozemel'nye elementy. Moskva, Izd-vo AN SSSR, 1963. 391 p. (MIRA 17:2)

1. Akademiya nauk SSSR. Institut geokhimii i analiticheskoy khimii.

KOLOSOVA, G.M.; SENYAVIN, M.M.

Determination of ion exchange constants based on the practice of chromatographic analysis. Report No.1: Determination of the constant of the cesium exchange on a KU-2 sulfo-cation exchanger. Zhur. anal.khim. 18 no.10:1178-1183 O '63. (MIRA 16:12)

1. V.I.Vernadsky Institute of Geochemistry and Analytical Chemistry, Academy of Sciences, U.S.S.R., Moscow.

SHAMSIYEV, S.M.; SENYAVIN, M.M.

Molybdenum recovery by ion exchange. TSvet. met. 36 no.10: 8-10 O '63. (MIRA 16:12)

L 31328-65 EWT(m)/EWP(j)/T Pc-4 RM

ACCESSION NR: AP4047634 S/0192/64/005/005/0681/0690

AUTHOR: Varshal, G. M.; Senyavin, M. M.

TITLE: The process of paper partition chromatography of mixtures of rare earth elements in light of the structural salting out theory

SOURCE: Zhurnal strukturnoy khimii, v. 5, no. 5, 1964, 681-690

TOPIC TAGS: paper partition chromatography, rare earth element, salting out theory, nitrate thiocyanate complex, nitrate trichloroacetate complex

ABSTRACT: Among parameters determining the extent of paper chromatographic separation of mixtures of rare earth elements is the composition of the stationary phase represented by the saturated aqueous solution of the salting out agent sorbed by the paper. It had been shown that the salting out agent anion (usually the nitrate ion) was involved in the formation of the rare earth complex compounds extracted with organic solvents (the mobile phase). Experiments were run to explain, from the salting out structural theory position, the effect of the nature

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of the salting out agent cation in the extraction of the rare earth element nitrate thiocyanate and nitrate-trichloroacetate complex ions from aqueous solutions of the salting out agents and in the process of chromatographically separating the rare earth elements on paper treated with solutions of salting out agents. The experimental data on the partition coefficients and the R_f values of the individual rare earth elements was in good agreement with the concepts about the dehydration and hydration of complex rare earth element solvates under the influence of the salting out agent cation. It was proposed that chromatographic results may be useful in studying the action of salting out agents on the proximate hydration of salted out ions since very small changes in ion hydration (and consequently in their extractability) result in significant differences in R_f values. "In conclusion the authors take the opportunity to sincerely thank O. Ya. Samoylov for help in evaluating the results of the chromatographic tests from the position of the structural salting out theory." Orig. art. has: 2 tables and 11 figures

ASSOCIATION: Institut geologii rudny*kh mestorozhdeniy, petrografii, mineralogii i geokhimii AN SSSR (Institute of Geology of Ore Deposits, Petrography, Min-

L 31328-65
ACCESSION NR: AP4047634

2

eralogy and Geochemistry AN SSSR); Institut geokhimii i analiticheskoy khimii AN SSSR (Institute of Geochemistry and Analytical Chemistry AN SSSR)

SUBMITTED: 30Jan64 ENCL: 00 SUB CODE: IC, GC

NR REF SOV: 015 OTHER: 001

Card 3/3

L 14520-65 EWT(m)/EWP(j)/EWP(b)/EWP(t) IJP(c)/SSD JD/JG/RM
ACCESSION NR: AP5001425 S/0075/64/019/008/0947/0954

AUTHOR: Varshal, G. M.; Senyavin, M. M.

TITLE: Selection of complex-forming substances in the chromatographic separation of the rare earth elements on paper. Use of trichloroacetic acid

SOURCE: Zhurnal analiticheskoy khimii, v. 19, No. 8, 1964, 947-954

TOPIC TAGS: chromatographic analysis, chemical separation, rare earth metal, methyl ethyl ketone

Abstract: The extraction of rare earth elements with methyl ethyl ketone and solution of HSCN in methyl ethyl ketone from aqueous solutions of ammonium, lithium, sodium, potassium, and rubidium nitrates was investigated, and the results were compared with data on the separation of a mixture of the rare earth elements on paper treated with solutions of the corresponding alkali nitrates. Solutions of thiocyanic acid in organic solvents were used as the mobile solvent; the stationary phase was a saturated aqueous solution of ammonium nitrate adsorbed on the paper. The solvent, solution of HSCN in methyl ethyl ketone, provided a distinct separation of La, Ce,

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L 14520-65

ACCESSION NR: AP5001425

Pr, Nd, Sm, Gd, Y, Dy, Ho, Er, Tm, Yb, and Lu; terbium was not separated from yttrium; in the presence of a large relative content of elements of the cerium group (above 70-80%), the separation of praseodymium from cerium and neodymium was hindered. Basic requirements were formulated for the complex-forming substance in the chromatographic separation of a mixture of the rare earth elements, present together with the NO_3 ion in the internal coordination sphere of the rare earth ion: 1) weak complex formation of the rare earth ions, not leading to displacement of the nitrate ions from the internal coordination sphere; 2) sufficient hydrophobic character of the addend, leading to an increase in the partition coefficients of the rare earth elements in comparison with the nitrate system. The impossibility of using polybasic carboxylic acids and hydroxy acids for the chromatographic separation in the nitrate system was due to their high hydrophilic properties and the great strength of their complexes with the rare earth elements. Monobasic carboxylic acids (especially halo-derivatives with increasing hydrophobic properties) were found to be promising for paper chromatographic separation of mixtures of the rare earth elements. Trichloroacetic acid enabled quantitative separation of elements of the cerium group: La, Ce, Pr, Nd, Sm, and Tb. Yttrium gave a joint zone with dysprosium, holmium with erbium, and thulium with ytterbium and lutecium. Orig. art. has: 4 figures, 1 graph, and 3 tables.

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L 14520-65
ACCESSION NR: AP5001425

2

ASSOCIATION: Institut geologii rudnykh mestorozhdeniy, petrografii, mineralogii i geokhimii AN SSSR (Institute of Geology of Ore Deposits, Petrography, Mineralogy, and Geochemistry, AN SSSR); Institut geokhimii i analiticheskoy khimii im. V. I. Vernadskogo AN SSSR, Moscow (Institute of Geochemistry and Analytical Chemistry, AN SSSR)

SUBMITTED: 24Sep63 ENCL: 00 SUB CODE: GC, IC

NO REF SOV: 007 OTHER: 007 JPRS

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L 23898-65 EWT(m) Pc-4 RM

ACCESSION NR: AP5002573 S/0076/64/038/012/2819/2822

AUTHOR: Kolosova, G.M.; Senyavin, M.M.

TITLE: The equilibrium constant of ion exchange as a measure of the selectivity of ion exchange resins. The selectivity of sulfo cation exchange resins with different numbers of crosslinkages

SOURCE: Zhurnal fizicheskoy khimii, v. 38, no. 12, 1964, 2819-2822

TOPIC TAGS: ion exchange resin, sulfo cation exchange resin, exchange resin selectivity, exchange resin structure, resin crosslinkage, divinylbenzene polymer, alkali metal ion

ABSTRACT: The equilibrium constant of ion exchange resins, i.e. the distribution coefficient for the resin-solution system, was determined experimentally to relate the selectivity of resins to their degree of crosslinking. Kolosova's technique (Zh. Analit. Khimii v. 18, 1178, 1963) was used to measure the equilibrium constants for Na, K, Rb and Cs and for samples of KU-2 cation exchange resins. Crosslinking, as determined by swelling tests, was shown to be proportional to the content of divinylbenzene in the copolymer. The equilibrium constants of all ions increased with the content of divinylbenzene (from 2-20%) as expected from the theory, with the exception of sodium ions. The selectivity coefficients

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L 23898-65

ACCESSION NR: AP5002573

i.e. the ratios of the equilibrium constants for pairs of alkali metal ions, were calculated. The efficiency of cation exchange resins for separating mixtures of alkali metal salts was shown to increase with crosslinking, and this correlation was proved by a radio tracer study. Orig. art. has: 2 figures, 2 tables and 2 formulas.

ASSOCIATION: Institut geokhimii i analiticheskoy khimii im. V.I. Vernadskogo (Geochemistry and analytical chemistry institute)

SUBMITTED: 24Oct63 ENCL: 00 SUB CODE: GC

NO REF SOV: 010 OTHER: 007

Card 2/2

L 25162-65 EWT(m)/EWP(t)/EWP(b) Pc-4 IJP(c) JD/JG/RM
ACCESSION NR: AP5002583 S/0076/64/038/012/3002/3003

AUTHOR: Kolosova, G.M.; Senyavin, M.M.

TITLE: Determination of ion exchange constants by chromatographic experiments; ion exchange constants of the alkali metals on cation exchange resins with varying numbers of cross linkages

SOURCE: Zhurnal fizicheskoy khimii, v. 38, no. 12, 1964, 3002-3003

TOPIC TAGS: alkali metal, hydrogen exchange, ion exchange constant, chromatographic analysis, cationite cross linkage, divinylbenzene/cationite KU-2

ABSTRACT: Concentration coefficients in an exchange of hydrogen for alkali metal ions were determined for several samples of cationite KU-2 at varying levels of cross linkage (i.e. nominal divinylbenzene content of 2 to 24%). The methodology is described; results are presented in tabular form for Li^+, Na^+, K^+, Rb^+ and Cs^+, and show that these coefficients increase for the alkali metals from Li to Cs and as the cross linking increases in the cationite. Exceptions to the latter pattern were provided by Li and Na. Orig. art has: 2 tables and 1 formula.

ASSOCIATION: Institut geokhimii i analiticheskoy khimii, Akademiya nauk SSSR (Geochemistry and analytical chemistry institute, Academy of sciences, SSSR)

Card 1/2

L 25162-65
ACCESSION NR: AP5002583

SUBMITTED: 24Oct63 ENCL: 00 SUB CODE: IC

NO REF SOV: 003 OTHER: 002

Card 2/2

RYABCHIKOV, D.I., otv. red.; ALIMARIN, I.P., red.; PALEY, P.N., red.; BORISOVA, L.V., red.; ZOLOTOV, Yu.A., red.; SENYAVIN, M.M., red.; KARYAKIN, A.V., red.; VOLYNETS, M.P., re

[Modern methods of analysis; methods of studying the chemical composition and structure of substances. On the seventieth birthday of Academician A.P.Vinogrado·] Sovremennye metody analiza; metody issledovaniia khimicheskogo sostava i stroeniia veshchestv. K semidesiatiletiiu akademika A.P.Vinogradova. Moskva, Nauka, 1965. 333 p. (MIRA 18:7)

1. Akademiya nauk SSSR. Institut geokhimii i analiticheskoy khimii. 2. Chlen-korrespondent AN SSSR (for Ryabchikov).

L 54469-65 EWT(m)/EWG(m)/EWP(t)/EWP(b) IJP(c) RWH/JD/JG/GS/RM

ACCESSION NR: AT5013646 UR/0000/65/000/000/0118/0124
543.21:546.36+546.42+546.641:(28)

AUTHOR: Senyavin, M. M.; Nikitina, N. G.

TITLE: Ion-exchange concentration and separate isolation of cesium, strontium, and cerium from fresh water

SOURCE: AN SSSR. Otdeleniye obshchey i tekhnicheskoy khimii. Radiokhimicheskiye metody opredeleniya mikroelementov (Radiochemical methods for determining trace elements); sbornik statey. Moscow, Izd-vo Nauka, 1965, 118-124

TOPIC TAGS: column chromatography, ion exchange concentration, alkaline earth metal, cesium separation, strontium separation, cerium separation, cation exchange resin, water analysis

ABSTRACT: The authors' objective was to separate a mixture of cesium, strontium, and cerium isotopes by ion-exchange chromatography, HCl being used as the eluent. After calculating the optimum concentration of the eluent for each element and the volume of eluent of a given concentration corresponding to the peak on the elution curve (V_{max}), the authors developed a procedure for separating a mixture of Cs^{137},

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L 54469-65

ACCESSION NR: AT5013646

Sr^{90}, and Ce^{144} present in fresh water. The KU-2 cation-exchange resin in the hydrogenated form was employed. The activity of the filtrates was measured with a β counter. Tap water to which the three isotopes had been added was passed through a column filled with KU-2, then the following amounts of acid were successively poured through the column: 100 ml 0.05 N HCl, 230 ml 0.5 N HCl, and 200 ml 2 N HCl, to remove Cs^{137}, Sr^{90}, and Ce^{144}, respectively. The data indicate that the proposed ion-exchange method permits the separation and a sufficiently accurate determination of the content of cesium, strontium, and cerium in solutions with compositions similar to those of natural waters. Orig. art. has: 4 figures, 4 tables, and 2 formulas.

ASSOCIATION: None

SUBMITTED: 20Mar64 ENCL: 00 SUB CODE: IC, GC

NO REF SOV: 005 OTHER: 010

BAB

Card 2/2

SENYAVIN, M.M.

Basic regularities of sorption concentration. Trudy Kom. anal. khim. 15:311-322 '65. (MIRA 18:7)

L 12106-66 EWT(m)/EWP(t)/EWP(b) IJP(c) JD/JG/GS

ACC NR: AT5026382 SOURCE CODE: UR/0000/65/000/000/0274/0293

AUTHOR: Ryabchikov, D. I. (Corresponding member AN SSSR); Senyavin, M. M.; Sklyarenko, Yu. S.

ORG: None

TITLE: Complex compounds of rare earth elements and their uses in the production and analysis of pure rare earth elements

SOURCE: AN SSSR. Institut geokhimii i analiticheskoy khimii. Sovremennyye metody analiza; metody issledovaniya khimicheskogo sostava i stroyeniya veshchestv (Modern methods of analysis; methods of investigating the chemical composition and structure of substances), 274-293

TOPIC TAGS: complex molecule, rare earth, ion exchange chromatography, paper chromatography, metal extracting, crystallization, rare earth element

ABSTRACT: The article reviews the authors' research in the field of rare earth complex compounds. Results of reported studies of the composition, structure, and stability of these compounds are presented. The chemical mechanism and selection of conditions of separation of rare earth mixtures are discussed at length in relation to fractional crystallization, extraction, partition chromatography, ion

Card 1/2

L 12106-66

ACC NR: AT5026382

exchange chromatography, and in the case of separation of rare earths having variable valences. In the authors' view, the results of their research have facilitated the production and applications of rare earths by shedding light on the processes involved and thus permitting the selection of optimum conditions for their realization and for the analysis of rare earth materials. Orig. art. has: 4 figures.

SUB CODE: 07 / SUBM DATE: 05Jul65 / ORIG REF: 064 / OTH REF: 003

Card 2/2

L 51965-65 EWT(m)/EPF(n)-2/EWP(t)/EWP(b)/EWA(h) Peb/Pu-4 IJP(c)/DIAAP
ACCESSION NR: AT5012687 JD/JG UR/2513/65/015/000/0358/0367 31 30 B+1

AUTHOR: Varshal, G.M.; Bogdanova, V.I.; Senyavin, M.M. Saunkin, O.F.

TITLE: Partition paper chromatography and its application to the relative concentration of elements

SOURCE: AN SSSR. Komissiya po analiticheskoy khimii. Trudy, v. 15, 1965. Metody kontsentrirovaniya veshchestv v analiticheskoy khimii (Methods of concentrating substances in analytical chemistry), 358-367

TOPIC TAGS: paper chromatography, partition chromatography, trace element concentration, rare earth element, niobium analysis, tantalum analysis, cellulose column, neutron bombardment, activation analysis, gamma spectrometry

ABSTRACT: The article presents a brief general review of the basic principles of partition paper chromatography, and considers the characteristics of the method and its potential uses in the relative concentration of elements followed by their analytical determination. The separation of a mixture of rare earth elements, niobium, and tantalum was used as an example. Optimum conditions for this separation prevail in nitrate-thiocyanate and trichloroacetatenitrate systems, which were used in the experiments. To show the possibility of increasing the sensitivity of the partition chromatographic
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ACCESSION NR: AT5012687

method, an activation determination of rare earth impurities was carried out in yttrium oxide in the zones of the impurity elements on paper; these zones were cut out and irradiated with neutrons, after which the gamma spectra of the preparations were recorded. It was found that by thus combining activation analysis with partition paper chromatography, one can raise the sensitivity to 10^{-3}-10^{-4}%. The experimental and literature data show that the following two directions are promising: (1) determination of microimpurities by combining paper partition chromatography with such highly sensitive methods as radioactivation, mass spectrometry, luminescence, polarography, and (2) chromatographic separation of many-component systems on cellulose columns for the purpose of separating appreciable amounts of pure substances. Orig. art. has: 3 tables and 1 formula.

ASSOCIATION: Komissiya po analiticheskoy khimii, AN SSSR (Commission on Analytical Chemistry, AN SSSR)

SUBMITTED: 00 ENCL: 00 SUB CODE: IC, NP

NO REF SOV: 014 OTHER: 016

Card 2/2

L 16472-66 EWT(m)/ETC(f)/EWG(m)/EWP(t) IJP(c) DS/JD/JG/DM/RM
ACC NR: AP6005530 (N) SOURCE CODE: UR/0089/66/020/001/0040/0046

AUTHOR: Nikashina, V. A.; Senyavin, M. M.; Sorochan, A. M.; Alekseyenko, V. A.

ORG: none

41
B

TITLE: Ion-exchange separation of uranium and rare earth elements

SOURCE: Atomnaya energiya, v. 20, no. 1, 1966, 40-46

TOPIC TAGS: ion exchange chromatography, uranium, rare earth element, sorption

ABSTRACT: Sorption of uranium and rare earth elements from a mixture on KU-2 cation exchanger is calculated to determine the optimum conditions for ion-exchange separation of these elements. The calculations were based on solutions of hydrofluoric, hydrochloric, nitric, sulfuric and perchloric acids of various concentrations. Formulas are derived for determining the coefficients of distribution in the various systems on the basis of chromatographic separation by simple displacement and by the use of complex-forming reagents. The cases of cation sorption of positively and negatively charged complexes are considered. A comparison of theoretical and experimental data shows satisfactory agreement, and the proposed formulas are recom-

UDC: 543.544.6:546.791 + 546.65

Card 1/2

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ACC NR: AP6005530

mended for predicting conditions of chromatographic separation of arbitrary ion mixtures. Orig. art. has: 1 figure, 3 tables, 2 formulas.

SUB CODE: 07/ SUBM DATE: 24Mar65/ ORIG REF: 008/ OTH REF: 013

Card 2/2 mc

Card 1/1

ACC NR: AP6028202 SOURCE CODE: UR/0078/66/011/006/1410/1415

AUTHOR: Sorochan, A. M.; Senyavin, M. M.

ORG: none

TITLE: Stability constants of the citrate complexes of ytterbium and lanthanum

SOURCE: Zhurnal neorganicheskoy khimii, v. 11, no. 6, 1966, 1410-1415

TOPIC TAGS: rare earth metal, complex molecule, stability constant, lanthanum compound, ytterbium compound

ABSTRACT: Stability constants of the citrate complexes of ytterbium and lanthanum [Yb (La) citrate]$^{3-}$, were determined by static, chromatographic, and potentiometric methods. In the chromatographic method, a solution of the rare earth element's chloride (pH=3) was passed over a cation-exchange resin KU-2 which was equilibrated with a complexing agent; the column was then washed with a solution containing the complexing agent. In the static method, the solutions containing chlorides of the rare earth elements were contacted with KU-2 cation exchange resin. Under the potentiometric method, the excess of the complexing agent in the solution was neutralized. All experiments were conducted at 20°C. In all experiments, citric acid served as a complexing agent. Excellent agreement was found among the stability constants determined by the three methods for the citrate complexes of ytterbium and lanthanum. Orig. art. has: 3 figures, 6 tables, 2 formulas.

SUB CODE: 07/ SUBM DATE: 07Oct64/ ORIG REF: 008/ OTH REF: 005

UDC: 546.668:541.49+546.654:541.49

Card 1/1

ACC NR: AP7011841 SOURCE CODE: UR/0075/66/021/010/1165/1171

AUTHOR: Nikitina, N. G.; Galkina, N. K. Senyavin, M. M.

ORG: Institute of Geochemistry and Analytical Chemistry im. V. I. Vernadskiy AN SSSR, Moscow (Institut geokhimii i analiticheskoy khimii AN SSSR)

TITLE: Selection of conditions for ion exchange concentration and determination of trace impurities in analysis of high-purity materials

SOURCE: Zhurnal analiticheskoy khimii, v. 21, no. 10, 1966, 1165-1171

TOPIC TAGS: ion exchange resin, ion concentration, chemical composition, water

SUB CODE: 07

ABSTRACT: The authors examined some of the characteristics of concentration used for analysis of high-purity chemicals. Consideration is given to the factors which affect the degree of absolute concentration, i.e. the volumetric ratio of the initial and final solutions. The volume of the solution to be analyzed (initial) depends on the quantity (weight) of impurity which must be present for subsequent determination. The volume should be a minimum to reduce the duration of the concentration stage. The volume of regenerating solution at 100% regeneration (final)

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ACC NR: AP7011841

is independent of the degree of treatment of the ion exchanger layer and depends only on its quantity. These principles are illustrated by determining traces of chlorine in highly pure water. A method is developed on the basis of this example for determining micro quantities of chlorine and sodium ions in water and for selecting optimum conditions of ion exchange concentration of impurities from pure solutions. Conditions are studied for composite ion exchange concentration of impurities using KU-2 and KB-4 ion-exchange resins with subsequent spectral determination of the impurities. Optimum conditions are found for ion exchange concentration of impurities from saline solutions with separate precipitation of the components, and a method is developed for determining traces of radioactive substances in river and tap water. Orig. art. has: 1 figure, 3 formulas and 9 tables. [JPRS: 40,351]

Card 2/2

ACC NR: AP7003199 SOURCE CODE: UR/0056/66/051/006/1609/1612

AUTHOR: Boyarsninov, L. M.; Senyavin, M. M.

ORG: Moscow Institute of Steel and Alloys (Moskovskiy institut stali i splavov)

TITLE: Positron reflection from elements and alloys

SOURCE: Zh eksper i teor fiz, v. 51, no. 6, 1966, 1609-1612

TOPIC TAGS: electron reflection, positron, alloy composition, metal analysis, positron reflection

ABSTRACT: The main purpose of the investigation was to determine whether reflection of electrons or positrons from a target consisting of several elements (alloy or chemical compound) can be used as a means of determining the content of some of its components. To this end, the coefficients of electron and positron reflection from 17 pure elements (Be, C, Al, Si, Ti, Fe, Ni, Cu, Z n, Zr, Nb, Mo, Cd, Sn, Ta, Pb, Bi) and 7 alloys (three Sn-Pb, one Ta-Nb, two Cu-Zn alloys and 79NM5 permalloy) were measured, using Na^{22} as the positron source and Tl^{204} as the electron source. In addition, the reflection attenuation produced by filters of varying thicknesses was measured. The detector was an end-window counter (BFL-25) or an ionization chamber. The measurements showed that for light elements ($Z < 25$) the ratio of the electron to positron reflection coefficients increases rapidly with increasing atomic number, starting with 1.00 for Be and assumes a nearly constant value close to 1.30 for elements with $Z > 25$.

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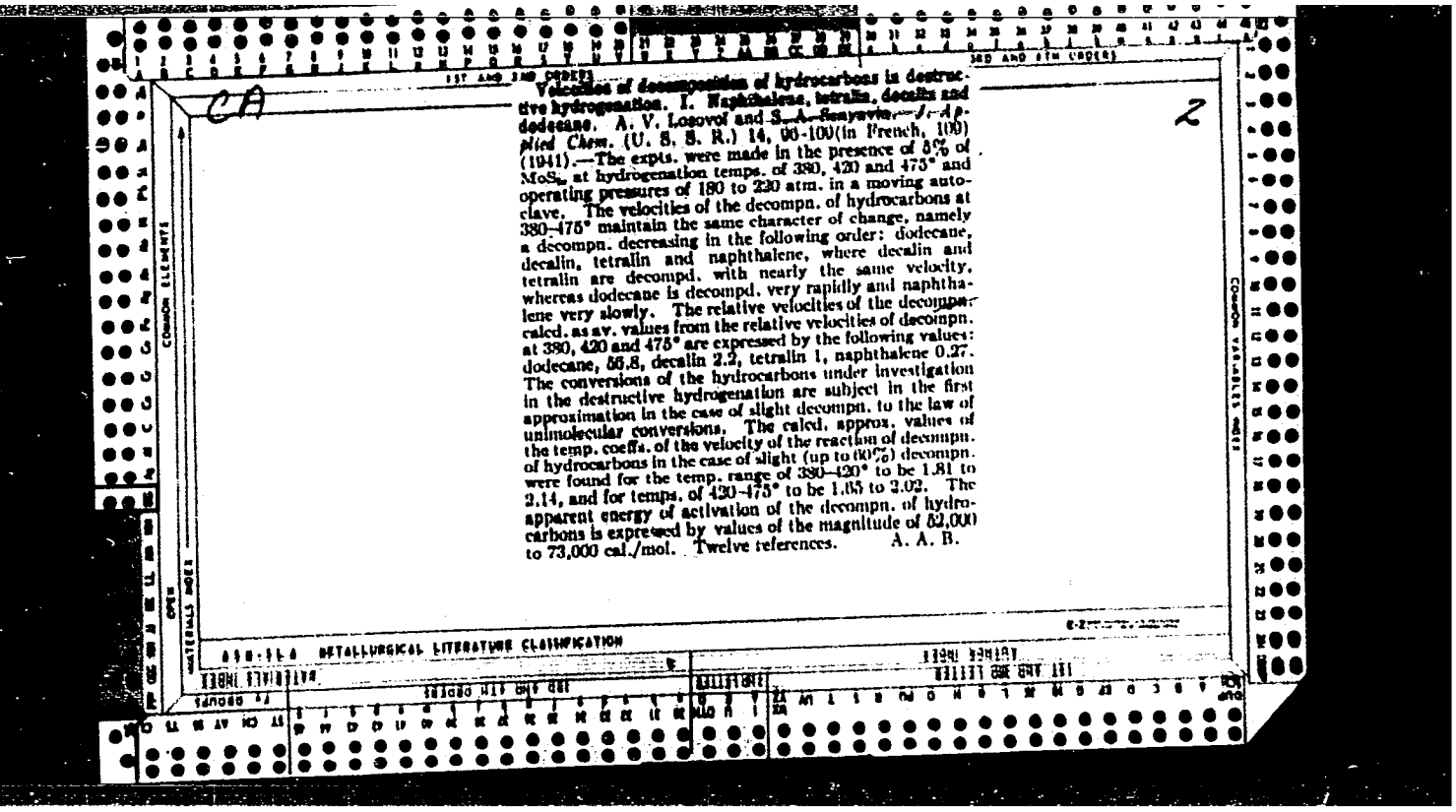
ACC NR: AP7003199

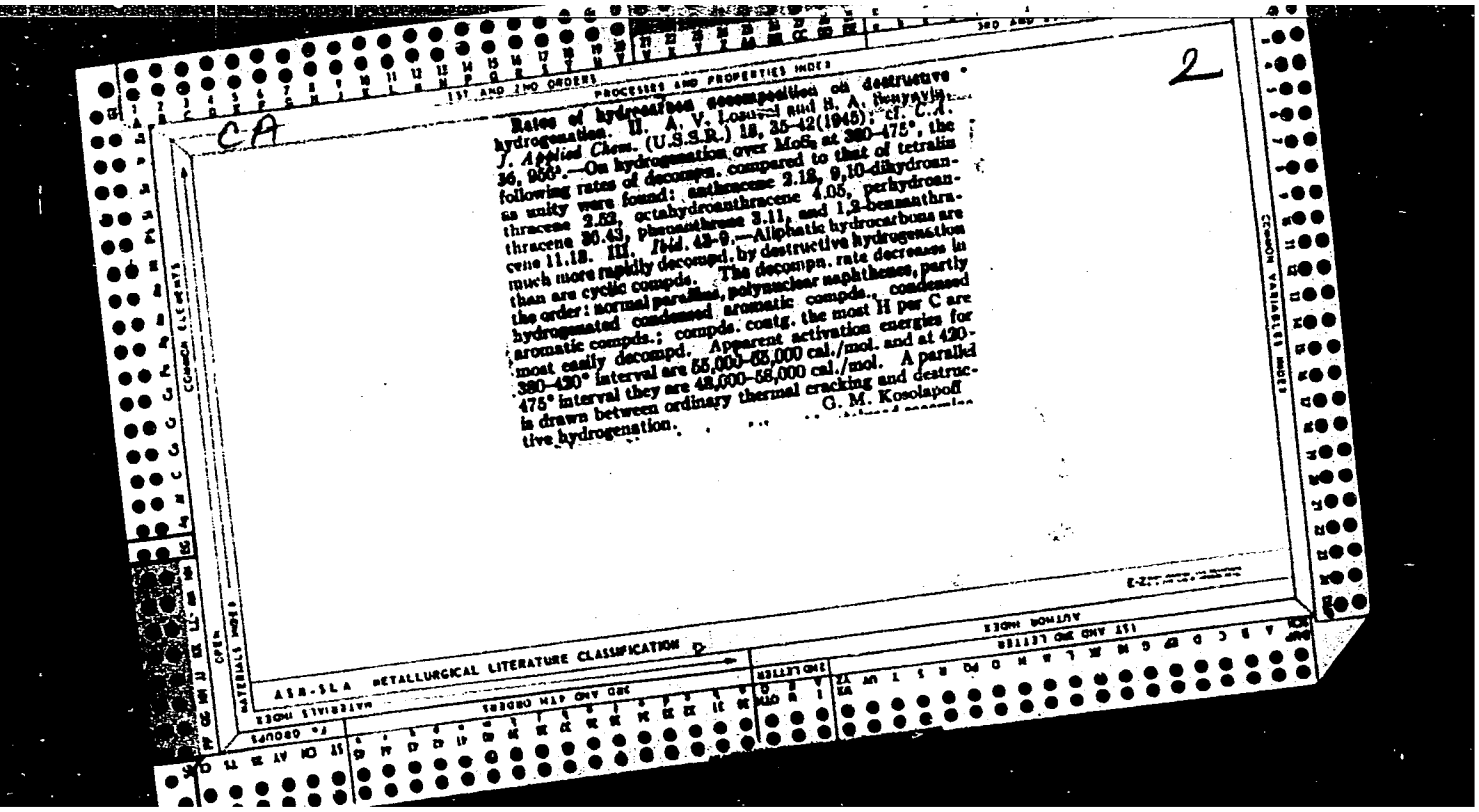
This confirms earlier results by others. The attenuation curves obtained for a tin-lead alloy with effective atomic number 73 were identical to those obtained for pure tantalum with the same atomic number, thus precluding the use of electron and positron reflection for the purpose of analysis or identification of elements in alloys. The relation established by R. Muller (Phys. Rev. v. 93, 891, 1954) holds true for multi-component mixtures of heavy and medium elements, but no confirmation of the Muller relation can be deduced from the data on light elements. Neither do the data confirm the anomaly observed by Danguy (Inst. Internat. Sci. Nucl. Monographie no. 10, 1962) in the reflection coefficient of nickel. Orig. art. has: 2 figures and 1 formula.

SUB CODE: 20/ SUBM DATE: 18Apr66/ ORIG REF: 001/ OTH REF: 004

Card 2/2



Velocities of decomposition of hydrocarbons in destructive hydrogenation. I. Naphthalene, tetralin, decalin and dodecane. A. V. Lozovoĭ and S. A. Sayavin. *J. Applied Chem.* (U. S. S. R.) 14, 90-100(in French, 100) (1941).—The expts. were made in the presence of 5% of MoS_2 at hydrogenation temps. of 380, 420 and 475° and operating pressures of 180 to 230 atm. in a moving autoclave. The velocities of the decompn. of hydrocarbons at 380–475° maintain the same character of change, namely a decompn. decreasing in the following order: dodecane, decalin, tetralin and naphthalene, where decalin and tetralin are decompd. with nearly the same velocity, whereas dodecane is decompd. very rapidly and naphthalene very slowly. The relative velocities of the decompn. calcd. as av. values from the relative velocities of decompn. at 380, 420 and 475° are expressed by the following values: dodecane, 56.8, decalin 2.2, tetralin 1, naphthalene 0.27. The conversions of the hydrocarbons under investigation in the destructive hydrogenation are subject in the first approximation in the case of slight decompn. to the law of unimolecular conversions. The calcd. approx. values of the temp. coeffs. of the velocity of the reaction of decompn. of hydrocarbons in the case of slight (up to 60%) decompn. were found for the temp. range of 380–420° to be 1.81 to 2.14, and for temps. of 420–475° to be 1.85 to 2.02. The apparent energy of activation of the decompn. of hydrocarbons is expressed by values of the magnitude of 52,000 to 73,000 cal./mol. Twelve references. A. A. B.



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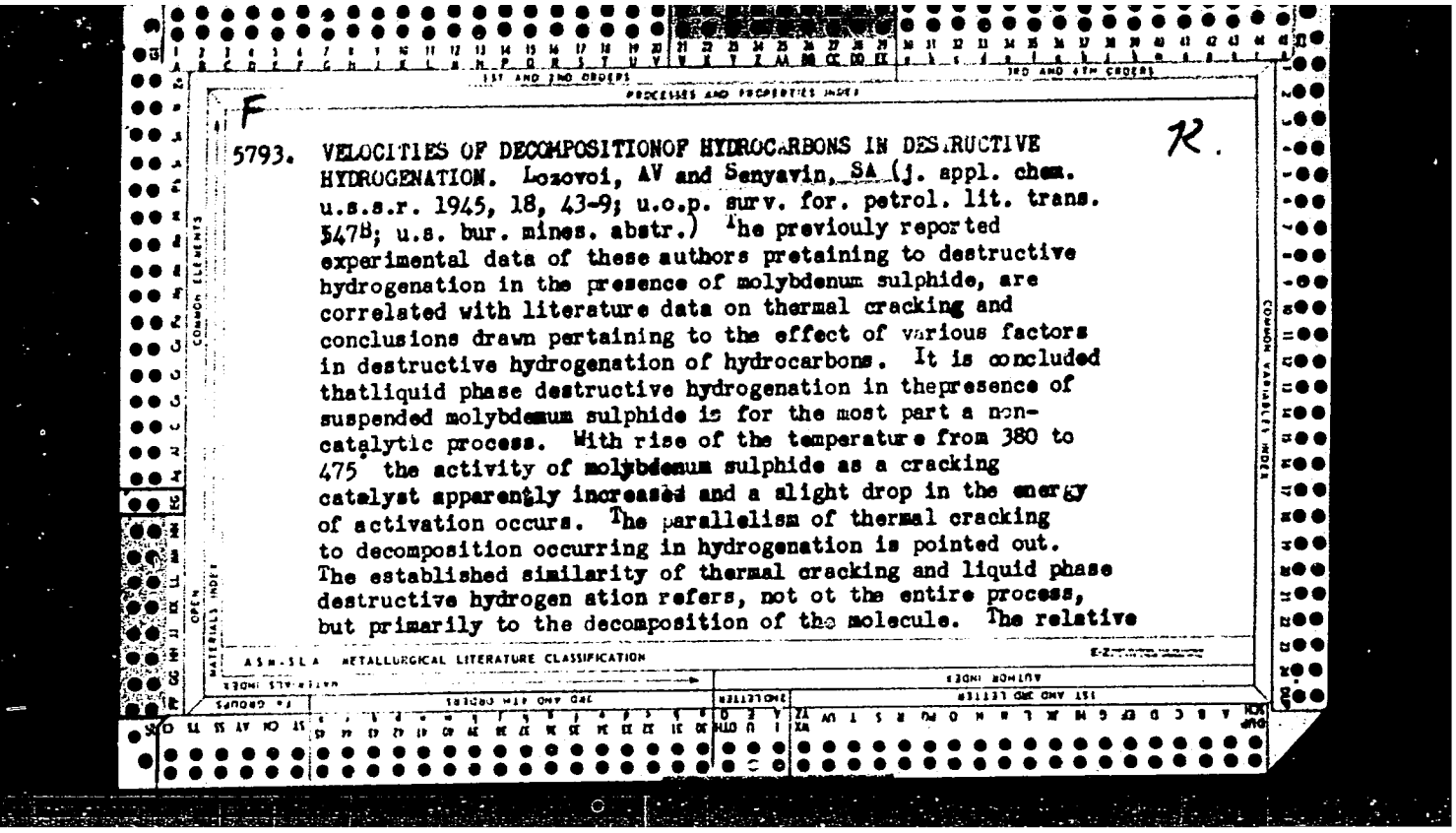
Rates of hydrocarbon decomposition on destructive hydrogenation. II. A. V. Loginov and B. A. Neyman. *J. Applied Chem.* (U.S.S.R.) 18, 35-42(1945); cf. C.A. 36, 960².—On hydrogenation over MoS_2 at 380–475°, the following rates of decompn. compared to that of tetralin as unity were found: anthracene 2.18, 9,10-dihydroanthracene 2.52, octahydroanthracene 4.05, perhydroanthracene 30.43, phenanthrene 3.11, and 1,2-benzanthracene 11.18. III. *Ibid.* 43-9.—Aliphatic hydrocarbons are much more rapidly decompd. by destructive hydrogenation than are cyclic compds. The decompn. rate decreases in the order: normal paraffins, polynuclear naphthenes, partly hydrogenated condensed aromatic compds., condensed aromatic compds.; compds. contg. the most H per C are most easily decompd. Apparent activation energies for 380–420° interval are 55,000–65,000 cal./mol. and at 420–475° interval they are 48,000–58,000 cal./mol. A parallel is drawn between ordinary thermal cracking and destructive hydrogenation.

G. M. Kosolapoff



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5793. VELOCITIES OF DECOMPOSITIONOF HYDROCARBONS IN DESTRUCTIVE HYDROGENATION. Lozovoi, AV and Senyavin, SA (j. appl. chem. u.s.s.r. 1945, 18, 43-9; u.o.p. surv. for. petrol. lit. trans. 547B; u.s. bur. mines. abstr.) The previouly reported experimental data of these authors pretaining to destructive hydrogenation in the presence of molybdenum sulphide, are correlated with literature data on thermal cracking and conclusions drawn pertaining to the effect of various factors in destructive hydrogenation of hydrocarbons. It is concluded thatliquid phase destructive hydrogenation in thepresence of suspended molybdenum sulphide is for the most part a non-catalytic process. With rise of the temperature from 380 to 475° the activity of molybdenum sulphide as a cracking catalyst apparently increased and a slight drop in the energy of activation occurs. The parallelism of thermal cracking to decomposition occurring in hydrogenation is pointed out. The established similarity of thermal cracking and liquid phase destructive hydrogen ation refers, not ot the entire process, but primarily to the decomposition of the molecule. The relative

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velocities of decomposition of molecules with about equal numbers of carbon atoms, decrease in the following order; normal paraffins polynuclear naphthenes, partly hydrogenated fused ring aromatics fused ring aromatics, i.e. hydrocarbons with close numbers of carbon atoms undergo destructive hydrogenation the more rapidly the higher the proportion of hydrogen they contain. Among aromatics the following series is formed in the order of increasing decomposition velocities: naphthanen, anthracene (phenanthrene), benzanthracene. Each additional ring in the molecule accelerates the reaction 5-10 times. In the naphthene series the correspondingincrease is 16 times. The above regularities are valid for the temperature range 380-475°. Within 380-420°, the temperature coefficient of the velocity of the destructive hydrogen is within 1.85 to 2.05, the apparent energy of activation from 55,000 to 65,000 cal./mol within 420 to 475° these values are 1.6-1.75 and 48,000-58,000 cal/mole reppectively.

SENYAVIN, S. A.

Rates of hydrogenation of aromatic and unsaturated hydrocarbons. VI. Hydrogenation in the presence of molybdenum disulfide. A. V. Lozovoi and S. A. Senyavin. *Sbornik Statei Obshchei Khim., Akad. Nauk S.S.S.R.* 1, 254–65(1953); cf. *C.A.* 35, 4370⁸.—Relative rates of hydrogenation of monocyclic aromatic hydrocarbons (C_6H_6, MePh, EtPh, *m*-xylene, mesitylene, Me_3C_6H) as well as $C_{10}H_8$, cyclohexene, 1-methylcyclohexene, and 1-methyl-3-cyclohexene were detd. in the presence of MoS_2 at 380° and 420° at high H pressure. The rate of hydrogenation is almost unaffected by introduction of 1–5 Me groups and the previously established rule (*loc. cit.*) for Ni does not apply in this instance. Neither is there a noticeable effect produced by increasing the size of the sidechain from Me to Et. Tetrahydronaphthalene is hydrogenated about 3 times as rapidly, $C_{10}H_8$ about 14 times as rapidly, and 1-methyl-3-cyclohexene about 180 times as rapidly as C_6H_6. Introduction of Me at the point of unsatn. retards hydrogenation; e.g. 1-methylcyclohexene is hydrogenated at a rate which is 40% of that of hydrogenation of cyclohexene. The rate of hydrogenation of ethylenic compounds is greater than that of aromatics of polycyclic type, which in turn are more reactive than those of true benzenoid compds. At low degrees of conversion the hydrogenation of C_6H_6 approaches a zero-order reaction in respect to hydrocarbon and nearly 1st-order in respect to H. The temp. coeffs. in hydrogenation of C_6H_6 and MePh in the interval 410–30° are 1.22 and 1.29, with activation energies of 19,000 and 24,500 cal./mole. At high pressure of H, MoS_2 catalyzes hydrogenation of C_6H_6 even at 240–50°. G. M. Kosolapoff